

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Withdrawn) A nuclear voltaic cell comprising:

2 a first substrate having a first surface;

a layer of fissile material deposited on said first surface

4 of said first substrate;

6 a first metallic contact layer deposited on said layer of
fissile material;

a second substrate having a first surface;

8 a second metallic contact layer deposited on said first
surface of said second substrate, wherein said first substrate
10 and said second substrate are positioned so that said first
metallic contact layer and said second metallic contact layer
12 are facing each other;

a liquid semiconductor interposed in between said first
14 metallic contact layer and said second metallic contact layer,
wherein said first metallic contact layer forms a Schottky
16 contact with said liquid semiconductor, and said second metallic
contact layer forms a low resistance or ohmic contact with said
18 liquid semiconductor; and

an electrical circuit connecting said first metallic
20 contact layer to said second metallic contact layer.

2. (Withdrawn) A nuclear voltaic cell according to claim
2 1, wherein electrical power is generated when an electrical load
is applied to said electrical circuit.

3. (Withdrawn) A nuclear voltaic cell according to claim
2 1, wherein said liquid semiconductor is a p-type semiconductor.

4. (Withdrawn) A nuclear voltaic cell according to claim
2 1, wherein said liquid semiconductor is an n-type semiconductor.

5. (Withdrawn) A nuclear voltaic cell according to claim
2 1, wherein a plurality of non conductive spacers are placed
between said first metallic contact layer and said second
4 metallic contact layer with said liquid semiconductor
interspersed there between.

6. (Withdrawn) A nuclear voltaic cell according to claim
2 1, wherein said liquid semiconductor flows between said first
metallic contact layer and said second metallic contact layer.

7. (Withdrawn) A nuclear voltaic cell according to claim
2 1, wherein said first substrate and second substrate are axially
opposed to each other and are wound around a mandrel.

8. (Withdrawn) A nuclear voltaic cell comprising:
2 a first substrate having a first surface;
a layer of radioactive isotope deposited on said first
4 surface of said first substrate; a first metallic contact layer
deposited on said layer of radioactive isotope;
6 a second substrate having a first surface;
a second metallic contact layer deposited on said first
8 surface of said second substrate, wherein said first substrate
and said second substrate are positioned so that said first
10 metallic contact layer and said second metallic contact layer
are facing each other;
12 a liquid semiconductor interposed in between said first
metallic contact layer and said second metallic contact layer,
14 wherein said first metallic contact layer forms a Schottky
contact with said liquid semiconductor, and said second metallic

16 contact layer forms a low resistance or ohmic contact with said
liquid semiconductor; and

18 an electrical circuit connecting said first metallic
contact layer to said second metallic contact layer.

9. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein electrical power is generated when an electrical load
is applied to said electrical circuit.

10. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein said liquid semiconductor is a p-type semiconductor.

11. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein said liquid semiconductor is an n-type semiconductor.

12. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein a plurality of non conductive spacers are placed
between said first metallic contact layer and said second
4 metallic contact layer with said liquid semiconductor
interspersed there between.

13. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein said radioactive isotope is at least one of an alpha
particle, beta particle or gamma ray emitter.

14. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein said liquid semiconductor flows between said first
metallic contact layer and said second metallic contact layer.

15. (Withdrawn) A nuclear voltaic cell according to claim
2 8, wherein said first substrate and second substrate are axially
opposed to each other and are wound around a mandrel.

16. (Withdrawn) A nuclear voltaic cell comprising:

2 a first metallic contact layer, and a second metallic
contact layer positioned facing said first metallic contact
4 layer, with a liquid semiconductor interposed in between,
wherein said liquid semiconductor contains a solution of fissile
6 material and said first metallic contact layer forms a Schottky
contact with said liquid semiconductor, and said second metallic
8 contact layer forms a low resistance or ohmic contact with said
liquid semiconductor; and

10 an electrical circuit connecting said first metallic
contact layer to said second metallic contact layer.

17. (Withdrawn) A nuclear voltaic cell according to claim
2 16, wherein electrical power is generated when an electrical
load is applied to said electrical circuit.

18. (Withdrawn) A nuclear voltaic cell according to claim
2 16, wherein said liquid semiconductor is a p-type semiconductor.

19. (Withdrawn) A nuclear voltaic cell according to claim
2 16, wherein said liquid semiconductor is an n-type
semiconductor.

20. (Withdrawn) A nuclear voltaic cell according to claim
2 16, wherein a plurality of nonconductive spacers are placed
between said first metallic contact layer and said second
4 metallic contact layer with said liquid semiconductor
interspersed there between.

21. (Withdrawn) A nuclear voltaic cell according to claim
2 16, wherein said liquid semiconductor flows between said first
metallic contact layer and said second metallic contact layer.

22. (Withdrawn) A nuclear voltaic cell according to claim
2 16, wherein said first substrate and second substrate are
axially opposed to each other and are wound around a mandrel.

23. (Currently Amended) A nuclear voltaic cell comprising:
2 a first ~~metallie~~-metal contact layer having a first side; ~~7~~
-and-a second ~~metallie~~-metal contact layer having a first
4 side, wherein said first side of said second metal contact layer
is positioned facing said first side of said first ~~metallie~~
6 metal contact layer and forms a channel between said first and
second metal contact layers; ~~7~~

8 -with-a liquid semiconductor interposed in between located
within said channel and in contact with said first side of said
10 first metal contact layer and in contact with said first side of
said second metal contact layer, wherein said liquid
12 semiconductor contains a solution of a radioactive isotope and
said first side of said ~~metallie~~-metal contact layer forms a
14 Schottky contact with said liquid semiconductor, and said first
side of said second ~~metallie~~-metal contact layer forms a low
16 resistance or ohmic contact with said liquid semiconductor; and

an electrical circuit connecting said first ~~metallie~~-metal
18 contact layer to said second ~~metallie~~-metal contact layer.

24. (Currently Amended) A nuclear voltaic cell according
2 to claim 23, ~~wherein~~ further comprising:
an electrical load connected to said electrical circuit,
4 wherein electrical power is generated when an ~~said~~ electrical
load is ~~applied~~ connected to said electrical circuit.

25. (Original) A nuclear voltaic cell according to claim
2 23, wherein said liquid semiconductor is a p-type semiconductor.

26. (Withdrawn) A nuclear voltaic cell according to claim
2 23, wherein said liquid semiconductor is an n-type
semiconductor.

27. (Currently Amended) A nuclear voltaic cell according
2 to claim 23, further comprising:

wherein ~~a plurality of non-conductive~~ nonconductive spacers
4 are ~~placed~~ abutted between said first side of said first
~~metallie-metal~~ metal contact layer and said first side of said second
6 ~~metallie-metal~~ metal contact layer to maintain said channel between
said first and second metal contact layers, wherein with said
8 ~~liquid semiconductor interspersed there between~~ within said
channel surrounds said plurality of nonconductive spacers.

28. (Currently Amended) A nuclear voltaic cell according
2 to claim 23, wherein said liquid semiconductor flows through
said channel between said first ~~metallie-metal~~ metal contact layer and
4 said second ~~metallie-metal~~ metal contact layer.

29. (Currently Amended) A nuclear voltaic cell according
2 to claim 23, further comprising:

a mandrel, wherein said first ~~substrate-metal~~ metal contact layer
4 and said second ~~substrate-metal~~ metal contact layer with said channel
there between ~~are axially opposed to each other and are wound~~
6 around a said mandrel to form a cell.

30. (Withdrawn) A nuclear voltaic array comprising a
2 plurality of nuclear voltaic cells arranged into a stack, said
stack comprising at least:

4 a first layer comprising a substrate having a first
surface, wherein a coating of fissile material is deposited on
6 said first surface, and further wherein a coating of a first

metallic contact is deposited on said coating of fissile
8 material;

a second layer comprising a liquid semiconductor, wherein
10 said second layer is adjacent to and in contact with said first
layer, wherein said first metallic contact forms a Schottky
12 contact with said liquid semiconductor in said second layer;

a third layer comprising a substrate having deposited on
14 its two planar surfaces a second metallic contact and a third
metallic contact, wherein said second metallic contact of said
16 third layer is adjacent to and in contact with said second
layer, and further wherein said second metallic contact forms a
18 low resistance or ohmic contact with said liquid semiconductor
in said second layer;

a fourth layer comprising a liquid semiconductor, wherein
20 said fourth layer is adjacent to and in contact with said third
metallic contact of said third layer and forms a low resistance
22 or ohmic contact with said liquid semiconductor in said fourth
layer; and
24

a fifth layer comprising a third substrate having coated on
26 a first surface a coating of fissile material, wherein said
coating of fissile material is coated with a fourth metallic
28 contact, and further wherein said fourth metallic contact of
said fifth layer is adjacent to and in contact with said fourth
30 layer and forms a Schottky contact with said liquid
semiconductor in said fourth layer.

31. (Withdrawn) A nuclear voltaic array according to claim
2 30, wherein each of said metallic contacts is connected together
by an electrical circuit.

32. (Withdrawn) A nuclear voltaic array according to claim
2 30, wherein electrical power is generated when a load is applied
to said electrical circuit.

33. (Withdrawn) A nuclear voltaic array according to claim
2 30, wherein said liquid semiconductor is a p-type semiconductor.

34. (Withdrawn) A nuclear voltaic array according to claim
2 30, wherein said liquid semiconductor is an n-type
semiconductor.

35. (Withdrawn) A nuclear voltaic array according to claim
2 30, wherein a plurality of nonconductive spacers are placed
between said first metallic contact layer and said second
4 metallic contact layer with said liquid semiconductor
interspersed there between.

36. (Withdrawn) A nuclear voltaic array according to claim
2 30, wherein said liquid semiconductor flows between said first
metallic contact layer and said second metallic contact layer.

37. (Withdrawn) A nuclear voltaic battery comprising a
2 plurality of nuclear voltaic cells arranged into a stack, said
stack comprising at least:

4 a first layer comprising a substrate having a first
surface, wherein a coating of radioactive isotope is deposited
6 on said first surface, and further wherein a coating of a first
metallic contact is deposited on said coating of radioactive
8 isotope;

a second layer comprising a liquid semiconductor, wherein
10 said second layer is adjacent to and in contact with said first
layer, wherein said first metallic contact forms a Schottky
12 contact with said liquid semiconductor in said second layer;

a third layer comprising a substrate having deposited on
14 its two planar surfaces a second metallic contact and a third
metallic contact, wherein said second metallic contact of said

16 third layer is adjacent to and in contact with said second
layer, and further wherein said second metallic contact forms a
18 low resistance or ohmic contact with said liquid semiconductor
in said second layer;

20 a fourth layer comprising a liquid semiconductor, wherein
said fourth layer is adjacent to and in contact with said third
22 metallic contact of said third layer and forms a low resistance
or ohmic contact with said liquid semiconductor in said fourth
24 layer; and

a fifth layer comprising a third substrate having coated on
26 a first surface a layer of radioactive isotope, wherein said
coating of radioactive isotope is coated with a fourth metallic
28 contact, and further wherein said fourth metallic contact of
said fifth layer is adjacent to and in contact with said fourth
30 layer and forms a Schottky contact with said liquid
semiconductor in said fourth layer.

38. (Withdrawn) A nuclear voltaic battery according to
2 claim 37, wherein each of said metallic contacts are connected
together by an electrical circuit.

39. (Withdrawn) A nuclear voltaic battery according to
2 claim 37, wherein electrical power is generated when an
electrical load is applied to said electrical circuit.

40. (Withdrawn) A nuclear voltaic battery according to
2 claim 37, wherein said liquid semiconductor is a p-type
semiconductor.

41. (Withdrawn) A nuclear voltaic battery according to
2 claim 37, wherein said liquid semiconductor is an n-type
semiconductor.

42. (Withdrawn) A nuclear voltaic battery according to
2 claim 37, wherein a plurality of nonconductive spacers are
placed between said first metallic contact layer and said second
4 metallic contact layer with said liquid semiconductor
interspersed there between.

43. (Withdrawn) A nuclear voltaic battery according to
2 claim 37, wherein said liquid semiconductor flows between said
first metallic contact layer and said second metallic contact
4 layer.

44. (Withdrawn) A nuclear voltaic battery, comprising a
2 plurality of nuclear voltaic cells arranged into a stack, said
stack comprising at least:

4 a first substrate having on its surface a first metallic
contact layer;

6 a second substrate having on its surface a second metallic
contact layer;

8 said first substrate and said second substrate are
positioned so that said first metallic contact layer and said
10 second metallic contact layer are facing each other with a
channel between said first metallic contact layer and said
12 second metallic contact layer, wherein said channel between said
first metallic contact layer and said second metallic contact
14 layer has a first end and a second end;

a liquid semiconductor interposed in said channel between
16 said first metallic contact layer and said second metallic
contact layer, wherein said first metallic contact layer forms a
18 Schottky contact with the liquid semiconductor, and said second
metallic contact layer forms a low resistance or ohmic contact
20 with said liquid semiconductor;

said liquid semiconductor containing a solution of a
22 radioactive isotope;

24 a closed loop connecting said first end of said channel
between said first metallic contact layer and said second
metallic contact layer to said second end of said channel
26 between said first metallic contact layer and said second
metallic contact layer; and

28 a pump connected to said closed loop for pumping said
liquid semiconductor through said channel between said first
30 metallic contact layer and said second metallic contact layer
and through said closed loop.

45. (Withdrawn) A nuclear voltaic battery according to
2 claim 44, further comprising a heat extractor connected to said
closed loop, wherein said liquid semiconductor flows through
4 said heat extractor and is cooled by said heat extractor.

46. (Withdrawn) A nuclear voltaic reactor core, comprising
2 a plurality of nuclear voltaic cells arranged into a stack, said
stack comprising at least:

4 a first substrate having on its surface a first metallic
contact layer;

6 a second substrate having on its surface a second metallic
contact layer;

8 said first substrate and said second substrate are
positioned so that said first metallic contact layer and said
10 second metallic contact layer are facing each other with a
channel between said first metallic contact layer and said
12 second metallic contact layer, wherein said channel between said
first metallic contact layer and said second metallic contact
14 layer has a first end and a second end;

a liquid semiconductor interposed in said channel between
16 said first metallic contact layer and said second metallic
contact layer, wherein said first metallic contact layer forms a
18 Schottky contact with the liquid semiconductor, and said second

metallic contact layer forms a low resistance or ohmic contact
20 with the liquid semiconductor;

said liquid semiconductor containing a solution of fissile
22 material;

a closed loop connecting said first end of said channel
24 between said first metallic contact layer and said second
metallic contact layer to said second end of said channel
26 between said first metallic contact layer and said second
metallic contact layer; and

28 a pump connected to said closed loop for pumping said
liquid semiconductor through said channel between said first
30 metallic contact layer and said second metallic contact layer
and through said closed loop.

47. (Withdrawn) A nuclear voltaic reactor core according
2 to claim 46, further comprising a heat extractor connected to
said closed loop, wherein said liquid semiconductor flows
4 through said heat extractor and is cooled by said heat
extractor.

48. (Withdrawn) A nuclear voltaic reactor core according
2 to claim 46, further comprising a scrubber connected to said
closed loop, wherein said liquid semiconductor flows through
4 said scrubber and a portion of unwanted fission fragments and
neutron activation products are removed from said liquid
6 semiconductor by said scrubber.

49. (Withdrawn) A nuclear voltaic cell array comprising a
2 plurality of nuclear voltaic cells, wherein:

said plurality of nuclear voltaic cells are stacked on top
4 of each other with a perforated metal sheet conductor placed
between each of said plurality of nuclear voltaic cells.

50. (Withdrawn) A nuclear voltaic cell array according to
2 claim 49, wherein each of said perforated metal sheet conductors
is connected together by an electrical circuit.

51. (Withdrawn) A nuclear voltaic cell array according to
2 claim 50, wherein electrical power is generated when a load is
applied to said electrical circuit.

52. (Withdrawn) A nuclear voltaic cell array according to
2 claim 51, wherein said plurality of nuclear voltaic cells each
comprise at least a first metallic contact layer with a layer of
4 fissile material deposited thereon, and a second metallic
contact layer positioned facing said first metallic contact
6 layer, with a liquid semiconductor interposed in between,
wherein said first metallic contact layer forms a Schottky
8 contact with said liquid semiconductor, and said second metallic
contact layer forms a low resistance or ohmic contact with said
10 liquid semiconductor.

53. (Withdrawn) A nuclear voltaic cell array according to
2 claim 51, wherein said plurality of nuclear voltaic cells each
comprise at least a first metallic contact layer with a layer of
4 radioactive isotope deposited thereon, and a second metallic
contact layer positioned facing said first metallic contact
6 layer, with a liquid semiconductor interposed in between,
wherein said first metallic contact layer forms a Schottky
8 contact with said liquid semiconductor, and said second metallic
contact layer forms a low resistance or ohmic contact with said
10 liquid semiconductor.

54. (Withdrawn) A nuclear voltaic cell array according to
2 claim 51, wherein said plurality of nuclear voltaic cells each
comprise at least a first metallic contact layer, and a second

4 metallic contact layer positioned facing said first metallic
contact layer, with a liquid semiconductor interposed in
6 between, wherein said liquid semiconductor contains a solution
of fissile material and said first metallic contact layer forms
8 a Schottky contact with said liquid semiconductor, and said
second metallic contact layer forms a low resistance or ohmic
10 contact with said liquid semiconductor.

55. (Withdrawn) A nuclear voltaic cell array according to
2 claim 51, wherein said plurality of nuclear voltaic cells each
comprise at least a first metallic contact layer, and a second
4 metallic contact layer positioned facing said first metallic
contact layer, with a liquid semiconductor interposed in
6 between, wherein said liquid semiconductor contains a solution
of a radioactive isotope and said first metallic contact layer
8 forms a Schottky contact with said liquid semiconductor, and
said second metallic contact layer forms a low resistance or
10 ohmic contact with said liquid semiconductor

56. (Withdrawn) A nuclear voltaic cell reactor core, said
2 core comprising at least:

a nuclear voltaic cell array having a high concentration of
4 fissile material therein for attainment of self-sustained
nuclear reaction;

6 a first closed loop connected to said nuclear voltaic cell
array through which a liquid semiconductor in the nuclear
8 voltaic cell array flows;

a second closed loop connected to said nuclear voltaic cell
10 array through which a coolant flows; and

a first heat exchanger connected to said first closed loop
12 and a second heat exchanger connected to said second closed
loop, wherein heat is removed from said liquid semiconductor and

14 said coolant when they flow through said first and said second
heat exchangers.

57. (Withdrawn) A nuclear voltaic cell reactor core
2 according to claim 56, wherein a dynamic refueling port is
connected to said first closed loop, wherein fissile material is
4 added to said liquid semiconductor as it flows through said
dynamic refueling port.

58. (Withdrawn) A nuclear voltaic cell reactor core
2 according to claim 57, further comprising a scrubber connected
to said first closed loop, wherein said liquid semiconductor
4 flows through said scrubber and a portion of fission fragments
and neutron activation products are removed from said liquid
6 semiconductor by said scrubber.

59. (Withdrawn) A nuclear voltaic cell reactor core, said
2 core comprising at least:

a nuclear voltaic cell array;

4 a coolant loop divided into two sections by a first
oscillating valve between a cold legs at a core inlet and a
6 second oscillating valve between a hot legs at a core outlet,
through which a liquid semiconductor flows; and

8 a reciprocating pneumatic piston that compresses an inert
gas to force said liquid semiconductor from a first heat
10 extractor while lowering an inert gas pressure in a second heat
extractor to enable said second heat extractor to fill with said
12 liquid semiconductor warmed by passage through said nuclear
voltaic cell reactor core, wherein heat is removed from said
14 liquid semiconductor when it flows through said first heat
extractor and said second heat extractor;

16 wherein the combination of said first and second
oscillating valves, said reciprocating pneumatic piston, and

18 said first and second heat extractors provides continuous quiet
cooling of said nuclear voltaic cell reactor core and heat
20 removal from said liquid semiconductor emerging out of said hot
legs.

60. (Withdrawn) A nuclear voltaic cell reactor core
2 according to claim 59, wherein a dynamic refueling port is
connected to a one of said first or said second heat extractors
4 and a fissile material is added to said liquid semiconductor as
it flows through said dynamic refueling port.

61. (Withdrawn) A nuclear voltaic cell reactor core
2 according to claim 59, further comprising:

a scrubber connected to a one of said first or said second
4 heat extractors, wherein said liquid semiconductor flows through
said scrubber and a portion of unwanted fission fragments and
6 neutron activation products are removed from said liquid
semiconductor by said scrubber.

62. (Withdrawn) A nuclear voltaic cell reactor core
2 according to claim 59, wherein said nuclear voltaic cell array
comprises a plurality of nuclear voltaic cells, wherein said
4 plurality of nuclear voltaic cells each comprise at least a
first metallic contact layer with a layer of fissile material
6 deposited thereon, and a second metallic contact layer
positioned facing said first metallic contact layer, with a
8 liquid semiconductor interposed in between, wherein said first
metallic contact layer forms a Schottky contact with said liquid
10 semiconductor, and said second metallic contact layer forms a
low resistance or ohmic contact with said liquid semiconductor.

63. (Withdrawn) A nuclear voltaic cell reactor core
2 according to claim 59, wherein said nuclear voltaic cell array

comprises a plurality of nuclear voltaic cells, wherein said
4 plurality of nuclear voltaic cells each comprise at least a
first metallic contact layer with a layer of radioactive isotope
6 deposited thereon, and a second metallic contact layer
positioned facing said first metallic contact layer, with a
8 liquid semiconductor interposed in between, wherein said first
metallic contact layer forms a Schottky contact with said liquid
10 semiconductor, and said second metallic contact layer forms a
low resistance or ohmic contact with said liquid semiconductor.

64. (Withdrawn) A method of direct conversion of nuclear
2 energy to electrical energy comprising the steps of:

placing a liquid semiconductor between two metallic
4 contacts, wherein said first metallic contact creates a low
resistance or ohmic contact with said liquid conductor and said
6 second metallic contact creates a Schottky contact with said
liquid semiconductor;

8 placing nuclear material in close proximity to said liquid
semiconductor; and

10 creating an electrical circuit between said first metallic
contact and said second metallic contact.

65. (Withdrawn) A method for directly converting nuclear
2 fission energy into electrical energy, the method comprising the
steps of:

4 depositing a layer of nuclear fissile material on a
substrate;

6 depositing a metallic contact layer onto said layer of
nuclear fissile material; depositing a second metallic contact
8 layer onto a second substrate;

10 placing a liquid semiconductor between said first and said
second substrates so that said liquid semiconductor is in

contact with said first metallic contact layer and said second
12 metallic contact layer;
creating a Schottky contact between said first metallic
14 contact and said liquid semiconductor;
creating an ohmic contact or low resistance contact between
16 said second metallic contact and said liquid semiconductor;
creating an electrical circuit between said Schottky
18 contact and said ohmic contact; and removing an electrical
energy from said electrical circuit, said electrical energy
20 being generated as a consequence of a release of nuclear energy
by said fissile material causing a plurality of electron-hole
22 pairs to be created in said liquid semiconductor, wherein said
electrical energy is generated as a result of current flow
24 between said Schottky contact and said low resistance or ohmic
contact.

66. (Withdrawn) The method of claim 65 further comprising
2 the step of:
placing said nuclear voltaic cell in contact with a coolant
4 and circulating said coolant in a closed system to remove heat
from said nuclear voltaic cell.

67. (Withdrawn) The method of claim 66 further comprising
2 the step of:
placing said nuclear voltaic cell in a closed system and
4 pumping said liquid semiconductor through said nuclear voltaic
cell and around said closed system.

68. (Withdrawn) The method of claim 67 further comprising
2 the step of:
removing heat from said liquid semiconductor by placing a
4 heat extractor in said closed system and pumping said liquid
semiconductor through said heat extractor.

69. (Withdrawn) The method of claim 68 further comprising
2 the step of:

removing unwanted fission fragments and unwanted neutron
4 activation products from said liquid semiconductor by placing a
scrubber in said closed system and pumping said liquid
6 semiconductor through said scrubber.

70. (Withdrawn) A method for directly converting nuclear
2 fission energy into electrical energy, the method comprising the
steps of:

4 placing nuclear fissile material in solution in a liquid
semiconductor;

6 sandwiching said liquid semiconductor containing said
fissile material between a first and second metallic contact;

8 creating a Schottky contact between said first metallic
contact and said liquid semiconductor;

10 creating a low resistance or ohmic contact between said
second metallic contact and said liquid semiconductor;

12 creating an electrical circuit between said Schottky
contact and said ohmic contact; and removing an electrical
14 energy from said electrical circuit, said electrical energy
being generated as a consequence of a release of nuclear energy
16 by said fissile material causing a plurality of electron-hole
pairs to be created in said liquid semiconductor, wherein said
18 electrical energy is generated as a result of current flow
between said Schottky contact and said low resistance or ohmic
20 contact.

71. (Withdrawn) The method of claim 70 further comprising
2 the step of:

placing said nuclear voltaic cell in contact with a coolant
4 and circulating said coolant in a closed system to remove heat
from said nuclear voltaic cell.

72. (Withdrawn) The method of claim 70 further comprising
2 the step of:

placing said nuclear voltaic cell in a closed system and
4 pumping said liquid semiconductor through said nuclear voltaic
cell and around said closed system.

73. (Withdrawn) The method of claim 72 further comprising
2 the step of:

removing heat from said liquid semiconductor by placing a
4 heat extractor in said closed system and pumping said liquid
semiconductor through said heat extractor.

74. (Withdrawn) The method of claim 72 further comprising
2 the step of:

removing unwanted fission fragments and unwanted neutron
4 activation products from said liquid semiconductor by placing a
scrubber in said closed system and pumping said liquid
6 semiconductor through said scrubber.

75. (Withdrawn) The method of claim 74 further comprising
2 the step of:

adding fissile material to said liquid semiconductor to
4 replace fissile material exhausted by fission events.

76. (Withdrawn) A method for directly converting nuclear
2 fission energy into electrical energy, the method comprising the
steps of:

4 arranging a plurality of nuclear voltaic cells in close
proximity to each other; and connecting said plurality of

6 nuclear voltaic cells so that an electrical output of said
nuclear voltaic cells is combined.

77. (Withdrawn) A method for directly converting nuclear
2 fission energy into electrical energy, the method comprising the
steps of:

4 connecting a plurality of nuclear voltaic cells so that an
electrical output of each of said

6 plurality of nuclear voltaic cells is combined;

surrounding said plurality of nuclear voltaic cells with a
8 biological shield; surrounding said biological shield with a
housing; and

10 placing a coolant between said biological shield and said
housing.

78. (Withdrawn) The method of claim 77 further comprising
2 the step of:

removing heat from said plurality of nuclear voltaic cells
4 by pumping said coolant through a heat extractor.